

Claims

1. A device for singulating surgical needles from a bulk supply of needles, said device comprising:

a vibratory bowl assembly for receiving said bulk supply of needles, said bowl assembly having a floor to receive said needles, a track extending from said floor to a needle discharge point and a selectively vibrating motor to vibrate said surgical needles into a single file along said track;

a discharge device having first and second needle receiving pockets, said device positioning said first and said second needle receiving pockets below said needle discharge point;

control means for selectively vibrating said vibratory bowl and selectively positioning the first and second needle pockets of said discharge device below said needle discharge point, said control means singulating individual needles from said single file of needles into said first and second needle receiving pockets; and

means for discharging said singulated needles in said first and second needle pockets in a spaced relationship on a conveyor.

2. A device for singulating surgical needles for processing as claimed in claim 1 wherein said track includes an adjustable dam to remove overlapping needles from said track.
3. A device for singulating surgical needles for processing as claimed in claim 1 wherein said track includes an adjustable dam to remove nested needles from said track.
4. A device for singulating surgical needles for processing as claimed in claim 1 wherein said track includes first and second adjustable dams, with said first dam positioned to remove overlapping needles from said track, and said second dam position to remove nested needles from said track.
5. A device for singulating surgical needles for processing as claimed in claim 1 wherein said control means includes a first optical sensor for providing a first control signal indicative of needle presence at said needle discharge point.

6. A device for singulating surgical needles for processing as claimed in claim 5 wherein said control means includes a second optical sensor for providing a second control signal indicative of a needle transfer from said needle discharge point to said first needle pocket.
7. A device for singulating surgical needles for processing as claimed in claim 6 wherein said control means selectively stops the vibrating motor in response to said second control signal.
8. A device for singulating surgical needles for processing as claimed in claim 6 wherein said control means selectively continues the vibrating motor in response to said second control signal indicative of a needle transfer, and stops the vibrating motor in response to said first control signal.
9. A device for singulating surgical needles for processing as claimed in claim 1, wherein said discharge device is operative to selectively hold said individual needles off of said conveyor before discharge onto said conveyor.

10. A device for singulating surgical needles for processing as claimed in claim 1, wherein said means for discharging said singulated needles in said first and second needle pockets in a spaced relationship on a conveyor are spaced for subsequent imaging at an inspection station.

11. A surgical needle singulating device for singulating surgical needles from a bulk supply of needles, said device comprising:

a vibratory bowl assembly for receiving said bulk supply of needles, said bowl assembly having a floor to receive said needles, a track extending from said floor to a needle discharge point and a selectively vibrating motor to vibrate said surgical needles into a single file along said track;

a discharge device having first and second needle receiving pockets, said device positioning said first and said second needle receiving pockets below said needle discharge point;

control means for selectively vibrating said vibratory bowl and selectively positioning the first and second needle pockets of said discharge device.

below said needle discharge point, said control means singulating individual needles from said single file of needles into said first and second needle receiving pockets; and

means for discharging said singulated needles in said first and second needle pockets in a spaced relationship on a conveyor.